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CLAIM

1. A novel crystalline polymorph Form-VI of 2-methyl-4-(4-methyl-1-piperazinyl)-10H-thieno[2,3-b][1,5] benzodiazepine (Olanzapine).

2. The crystalline polymorph Form-VI of Olanzapine of claim 1 having X-ray powder diffraction pattern with characteristic d-values (in Å) percentage (in %) as shown in the following table.

| d-values | Intensity (%) |
|----------|---------------|
| 10.2972  | 35            |
| 8.5646   | 6             |
| 7.6618   | 22            |
| 7.4935   | 21            |
| 7.3691   | 21            |
| 6.6317   | 25            |
| 6.5246   | 29            |
| 6.2320   | 87            |
| 5.7713   | 7             |
| 5.7121   | 9             |
| 5.3042   | 20            |
| 5.2174   | 6             |
| 4.9733   | 34            |
| 4.8335   | 7             |
| 4.7614   | 5             |
| 4.7162   | 8             |
| 4.6284   | 27            |
| 4.4802   | 13            |
| 4.3795   | 54            |
| 4.3163   | 77            |
| 4.2874   | 100           |
| 4.2308   | 21            |
| 4.1297   | 34            |
| 4.0958   | 34            |
| 4.0117   | 17            |
| 3.8275   | 24            |
| 3.7263   | 13            |
| 3.6509   | 17            |
| 3.5311   | 6             |
| 3.3141   | 29            |
| 3.2782   | 18            |
| 3.1207   | 17            |
| 3.0035   | 5             |

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| d-values | Intensity (%) |
|----------|---------------|
| 2.8824   | 5             |
| 2.8099   | 8             |
| 2.8014   | 6             |
| 2.0562   | 6             |

- 5 3. The crystalline polymorph Form-VI of Olanzapine of claim 2, having an X-ray powder diffraction pattern as depicted in Figure (1).
4. The crystalline polymorph Form-VI of Olanzapine of claim 1, having differential scanning calorimetry thermogram which exhibits a characteristic endo peak around 196°C.
- 10 5. The crystalline polymorph Form-1 of Olanzapine of claim 4, having a differential scanning calorimetry thermogram as depicted in Figure (2).
6. The crystalline polymorph Form-VI of Olanzapine of claim 1, having identified characteristic peaks around 3217 cm<sup>-1</sup>, 2933 cm<sup>-1</sup>, 1592 cm<sup>-1</sup>, 1561 cm<sup>-1</sup>, 1468 cm<sup>-1</sup>, 1369 cm<sup>-1</sup>, 1218 cm<sup>-1</sup>, 1143 cm<sup>-1</sup>, 1007 cm<sup>-1</sup>, 964 cm<sup>-1</sup>, 751 cm<sup>-1</sup> and 674 cm<sup>-1</sup> in the  
15 Infra red Spectrum.
7. The crystalline polymorph Form-VI of Olanzapine of claim 6, having an Infrared spectrum as depicted in Figure (3).
8. A process for the preparation of novel crystalline polymorph Form-VI of 2-methyl-4-(4-methyl-1-piperazinyl)-10H-thieno [2, 3-b] [1,5 ]benzodiazepine  
20 (Olanzapine), which comprises;
  - (i) stirring polymorph Form-I of Olanzapine in a C<sub>1</sub>-C<sub>6</sub> alkanol at a temperature of 0 to 40°C for 30 minutes to 10 hours;
  - (ii) isolating the obtained solid form step (i) by conventional methods; and
  - 25 (iii) drying the compound of step (ii) at a temperature of 40 to 100°C to afford the desired crystalline polymorph Form-VI of Olanzapine.
9. The process as claimed in claim 8, of step (i), wherein the said alcohol is n-butanol or tert-butanol.
10. A composition comprising novel crystalline Form VI of 2-methyl-4-  
30 (4-methyl-1-piperazinyl)-10H-thieno [2,3-b] [1,5] benzodiazepine according to any one of claims 1 to 7 and pharmaceutically acceptable carrier, diluent, excipient, additive, filler, lubricant, binder, stabilizer, solvent or solvate.

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11. The composition according to claim 10, in the form of a tablet, capsule, lozenge, powder, syrup, solution, suspension, ointment, or dragee.

12. The composition according to any one of claims 10 or 11, for the treatment of a disorder of the central nervous system.

5 13. A method for treating a disorder of the central nervous system comprising administering an effective amount of crystalline Form VI of 2-methyl-4-(4-methyl-1-piperazinyl)-10H-thieno [2,3-b] [1,5] benzodiazepine according to any one of claims 1-7 and a pharmaceutically acceptable carrier, diluent, excipient, additive, filler, lubricant, binder, stabilizer, solvent or solvate to a patient in need thereof.

10 14. A medicine for the treatment of a disorder of the central nervous system comprising an effective amount of crystalline Form VI of 2-methyl-4-(4-methyl-1-piperazinyl)-10H-thieno [2,3-b] [1,5] benzodiazepine according to any one of claims 1-7.

15 15. Use of crystalline Form VI of 2-methyl-4-(4-methyl-1-piperazinyl)-10H-thieno [2,3-b] [1,5] benzodiazepine according to any one of claims 1-7 for the preparation of a medicament for the treatment of a disorder of the central nervous system.